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# Self-Reports on Mental Health Problems of Youth With Moderate to Borderline Intellectual Disabilities

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## ABSTRACT

**Objective:** To determine the extent to which the Youth Self-Report (YSR) can be used to assess emotional and behavioral problems in adolescents with intellectual disabilities (IDs). **Method:** In 2003, 281 11- to 18-year-olds with IDs ( $IQ \geq 48$ ) completed the YSR in an interview, and in 1993, 1,047 non-ID adolescents completed the YSR themselves. Parents completed the Child Behavior Checklist (CBCL). The ID sample was split into lower ( $IQ 48-69$ ) and higher ( $IQ \geq 70$ ) IQ groups. Cronbach's  $\alpha$  values of the YSR scales and (intraclass) correlation coefficients between and within YSR and CBCL scale scores were calculated to determine parent-adolescent agreement and YSR construct validity, which were compared between samples. Mean YSR scale scores were compared between adolescents with ID with and without psychiatric symptoms. **Results:** Cronbach's  $\alpha$ , parent-adolescent agreement, and indications of construct validity were about similar in all samples, although discriminant validity was somewhat weaker in the lower IQ group. Mean scale scores were 1.5 to 2.0 times higher for ID adolescents with psychiatric symptoms. **Conclusions:** The YSR seems applicable in youth with an  $IQ \geq 48$ . Further research is needed to refine and confirm these findings and the factor structure of the YSR in adolescents with ID and to differentiate between adolescents with moderate and mild IDs. *J. Am. Acad. Child Adolesc. Psychiatry*, 2006;45(10):1224-1231. **Key Words:** youth self-report, adolescence, self-report, intellectual disability, assessment.

Until recently, to assess psychopathology and challenging behavior in children and adolescents with intellectual disabilities (IDs), most studies based their results on reports from parents and teachers, whereas only few used information from self-reports (Emerson, 2005). In the past decade, and in line with the trend of stimulating participatory research in people with IDs, there seems to be an increase in studies that also use self-reports. Although lower functioning children and adolescents may not be

fully capable of reflecting on their own emotional and behavioral functioning (Wallander et al., 2003), several studies showed that individuals with mild and moderate IDs are capable of reporting about their own functioning and feelings (Beck et al., 1987; Benavidez and Matson, 1993; Bramston and Fogarty, 2000; Deb et al., 2001; Demb et al., 1994; Emerson, 2005; Gullone et al., 1996; Heiman, 2001; Lindsay et al., 1994; Manikam et al., 1995; Moss et al., 1996).

In the general population (GP), including the views of children and adolescents is imperative to obtain a complete picture of their emotional and behavioral functioning (Van der Ende, 1999). This perspective is also gaining ground in the field of IDs (Emerson, 2005).

To study psychopathology in children and adolescents in the GP, the validated Child Behavior Checklist (CBCL), Teacher's Report Form (TRF), and Youth Self-Report (YSR) are frequently used (Achenbach, 1991a, b, c). Both CBCL and TRF are not only considered (Wallander et al., 2003) but also proven to be useful in adolescents with mild to moderate IDs (Borthwick-Duffy et al., 1997; Dekker et al., 2002)

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who, on the whole, function and display similar behaviors as non-ID peers. Even though the YSR contains the same constructs as the CBCL and TRF, it has not yet been comprehensively studied in adolescents with IDs.

The aim of this study was to determine whether the YSR could also be used to assess emotional and behavioral problems in adolescents who have moderate to borderline IDs. Because these adolescents can be considered as a heterogeneous group and to detect differences within the ID sample and between the ID samples and the GP, we distinguished between those with a lower IQ ( $<70$ ) and higher IQ ( $\geq 70$ ). More specifically, we compared the psychometric properties of the YSR between the ID and GP samples regarding levels of internal consistency, parent-adolescent agreement on similar subscales of the CBCL and YSR, construct validity, and criterion-related validity (in ID samples only).

Because we considered adolescents with IDs capable of answering questions about their own emotional and behavioral functioning, we did not expect to find differences in psychometric properties between the ID and GP samples. Furthermore, we expected mean YSR scale scores of youth with psychiatric symptoms to be higher than of youth without psychiatric symptoms. However, acquiescence (the tendency to say yes to questions irrespective of the content), suggestibility, and problems with question content, phrasing, and answering format can be a problem in people with a more severe ID (Finlay and Lyons, 2001). Therefore, if differences in psychometric properties of the YSR were to appear between samples, we predominantly expected them between the lower IQ group and the GP sample.

## METHOD

### Participants and Procedure

**ID Sample.** This study is part of a Dutch study on psychopathology in youth with IDs that started in 1996. At that time in The Netherlands, most children and adolescents with moderate to borderline IDs went to special schools for educable (inclusion IQ range  $\approx 60$ –80) or trainable (inclusion IQ range  $\approx 30$ –60) children. In 1996, 1,615 children (age range 6–18 years) were randomly selected from 132 schools for educable and trainable children in the province of Zuid-Holland (school response 87.1%). Of these, 219 children were excluded because they exceeded the age range, were not living at home, or had parents having problems with the Dutch language. Of the remaining 1,396 children, 231 parents could not be

contacted in person, but 982 completed at least one of the core instruments (response rate 70.3% and 84.3% of those who were personally contacted). Significantly more parents of children from schools for trainable than for educable children participated ( $p < .01$ ).

The present study was based on data collected at time 3 (October 2002 until January 2004). The target sample consisted of 1,001 adolescents whose parent(s) had in any way participated at time 1, minus one adolescent who had died, but plus seven adolescents who slightly exceeded the age range at time 1 ( $n = 1,007$ ). Adolescents were traced by consulting telephone books and municipal registers. Their parents were contacted first because this was the first time the adolescents themselves were asked to participate, and it was likely that not all of them knew about this study. Only after we obtained parental permission (which was refused for 140 adolescents) did we approach the adolescents. In 48 cases, we were unable to personally contact the adolescents (e.g., because of emigration, no valid address). Of the 819 eligible adolescents, 638 participated (response rate 77.9%).

We found no significant differences ( $\chi^2$ , or  $t$  test,  $p < .05$ ) between the 638 time 3 participating and 369 nonparticipating adolescents on time 1 measures regarding sex, school type attended, and mean CBCL scores (Total Problems, Internalizing, or Externalizing). However, adolescents more often participated when they were younger, there were two parents in their household, and their parents were of Dutch origin and of higher socioeconomic status (SES) and educational level. After adjusting for the correlation between these family variables, only fewer adolescents of non-Dutch parents had participated at time 3 ( $p < .05$ ).

Because many children and adolescents with autism are impaired in answering questions about their own functioning (Hill et al., 2004), we excluded 56 adolescents who had some form of autistic disorder. Furthermore, because the YSR has been constructed and validated for 11- to 18-year-olds, we only included those 416 within this age range. Of these, 10 had completed the YSR by themselves, whereas all other youths with IDs answered the questions of the YSR during an interview and took an IQ test. For the sake of standardization, these 10 youths were also excluded.

Eventually, 406 adolescents participated, but 67 were not capable of answering the questions of the YSR, primarily because of their ID. This difficulty was first determined through an inability to answer any of the questions of the verbal subtests of the IQ test. Second, the researchers (who are experienced in the field of ID) trained the interviewers to detect the adolescents' lack of comprehension of the questions, answering format, and time period and to detect inconsistencies in their answers. Interviewers were trained to explain the item content, when necessary, without being suggestive, and the response categories were written on paper. An interviewer was allowed to end the interview when an adolescent was not able to answer any of the first YSR questions. The interviewer informed the researchers about their detection of any inconsistencies and about the questions they had explained. In case of any indication of an adolescent's inability or when the number of missing values exceeded 10%, the researchers regarded an adolescent as unable to reliably answer the questions of the YSR.

To ensure that only those were included who were really capable of answering the questions, through receiver operating characteristics curves, we determined whether IQ could be taken as a measure to distinguish between adolescents who were and who were not capable of doing this. The area under the curve was 0.916; in other words, the IQ score is a highly accurate measure of distinguishing between these two groups of adolescents. At an IQ of 48, both sensitivity and specificity were the highest (0.826 and 0.896, respectively), and this was therefore taken as a cutoff point.

The final sample thus consisted of 281 adolescents with an IQ  $\geq 48$  (mean IQ 66.8, SD 12.1), which was split into a lower IQ group ( $n = 173$ , IQ 48–69, mean IQ 58.9, SD 6.2), and a higher IQ group ( $n = 108$ , IQ  $\geq 70$ , mean IQ 79.3, SD 7.7).

**General Population Sample.** In 1993, 2,916 children and adolescents (4–18 years old, of Dutch nationality, and living in The Netherlands) were selected by a stratified multistage cluster and random sampling design (Verhulst et al., 1997a). Exclusion criteria were an ID, severe physical disability, and the parents' limited comprehension of the Dutch language ( $n = 57$ ). Another 62 were not traceable and 88 could not be personally contacted. Of the remaining 2,709 eligible adolescents, 2,227 parents (82.2%) answered the questions of the CBCL. Nonresponse analysis showed that significantly more parents of an adolescent in the lower age group (4–10 years) participated.

The 11- to 18-year-olds completed the YSR themselves ( $n = 1,124$ ). Of these, 51 who went to schools for special education, ten 10-year-olds, and sixteen 19-year-olds were excluded. Consequently, the GP sample consisted of 1,047 adolescents.

## Measures

The YSR is used to assess emotional and behavioral functioning in the preceding 6 months through self-report by 11- to 18-year-olds. It was modeled after the CBCL (see below). It contains 119 items: 16 socially desirable items and 103 problem items. All of the items are short sentences worded in the first person, using active voice, to be answered on a 3-point scale: 0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true. Eight syndrome scales, two broad-band scales (Internalizing, containing the items of Withdrawn, Anxious/Depressed, and Somatic Complaints, and Externalizing, containing the items of Delinquent Behavior and Aggressive Behavior), and a Total Problems score (containing 101 problem items) can be derived. Higher scores represent higher levels of problems. Good validity and test-retest reliability have been established (Achenbach, 1991c) and were confirmed for the Dutch version (Verhulst et al., 1997b).

As stated previously, adolescents from the GP completed the YSR by themselves. To control for lack of reading ability in adolescents with ID and to determine an inability to answer the questions, the YSR was administered in an interview in which the questions were read to the adolescent. Before the start of the interview, adolescents were told that their answers would not be shared with their parents, caregivers, or anyone else and that there were no wrong answers.

The CBCL is completed by parents of 4- to 18-year-olds and consists of 120 statements about emotional and behavioral problems. Parents are asked to what extent (3-point scale, same as the YSR) these statements applied to their child in the preceding 6 months. Similar to the YSR, eight syndrome scales, two broad-band scales, and a Total Problems score (containing 118 problem items) can be derived. The Dutch version of the CBCL has shown to have good reliability and validity (Verhulst et al., 1996). Results from our time 1 study in youth with IDs revealed similar internal consistency of the CBCL scales as in the GP, high 1-year stability, relatively high interinformant agreement, and high correlation coefficients between CBCL scales and similar scales from another instrument (Dekker et al., 2002). Most parents of the adolescents with IDs completed the CBCL themselves. In the GP, the CBCL was administered in an interview.

An estimation of the full IQ in the ID sample was obtained by administering two verbal (Information and Vocabulary) and two performance subtests (Picture Completion and Block Design) of the Dutch version of the WISC-III (Wechsler, 1991). Time and financial limitations prohibited administration of the whole WISC-III, but the

average correlation coefficient of the subtest dyad Information-Vocabulary with the Verbal scale was 0.93 and 0.88 between the subtest dyad Picture Completion-Block Design with the Performance scale (Dumont and Faro, 1993; Kaufman et al., 1996). Hence, these subtests provide a reliable estimation of the full IQ.

SES was assessed by taking the highest occupational level of either one of the parents (Central Bureau of Statistics, 1993; Van Westerlaak et al., 1975). We distinguished between low SES (i.e., unemployed or work that requires no skills or lower vocational training) and medium/high SES (i.e., higher levels of work).

The Dutch version of the Diagnostic Interview Schedule for Children-Parent version (DISC-IV) was administered by trained lay interviewers to assess the extent to which the symptom criteria of a *DSM-IV* Anxiety, Mood, or Disruptive Disorder, without considering impairment, were met in the past year (American Psychiatric Association, 2000; Ferdinand and Van der Ende, 1998; Shaffer et al., 2000). We distinguished between adolescents who met the symptom criteria of at least one *DSM-IV* disorder and adolescents who did not.

## Data Analysis

Differences between GP and ID sample characteristics were tested with  $t$  and  $\chi^2$  tests. Internal consistency of the YSR scales was determined through Cronbach's  $\alpha$ . Parent-adolescent agreement was assessed through calculating two-way mixed intraclass correlation coefficients (ICCs) between scores on similar subscales of YSR and CBCL. FisherZ transformations were used to test for differences in ICCs between samples.

ANOVAs were used to compare the mean scale scores between the GP and ID samples (adjusting for sex, age, and SES differences) and to determine the level of criterion-related validity in the ID samples by comparing the mean YSR scale scores between adolescents with and without psychiatric symptoms. We calculated the percentage of explained variance (PEV) for significant differences, adjusting for the adolescents' sex, age, IQ, and family SES.

Multitrait-multimethod (MTMM) matrices were inspected to determine the level of construct validity of the YSR in all samples. MTMM matrices contain correlation coefficients between different scale scores within one instrument (i.e., multitrait-monomethod correlation triangle) and between scale scores of different instruments that measure both different and the same constructs (i.e., MTMM correlation triangles and monotrait-multimethod (comparable with parent-adolescent agreement), respectively). We inspected these matrices consistent with five criteria of Campbell and Fiske (1959). Kendall's  $\tau$  correlation coefficients were calculated to compare the ordering of correlation coefficients across the multitrait-monomethod and MTMM triangles, each containing 28 multitrait correlation coefficients, within and between samples (FisherZ transformations).

## RESULTS

The GP sample composition significantly differed from that of the ID sample with respect to sex, average age, and SES. In the GP sample, adolescents were less often male (49.0% versus 61.9%,  $\chi^2 = 14.8$ ,  $p < .00$ ), were younger (14.4 versus 15.3,  $df = 1,326$ ,  $t = 7.3$ ,  $p < .00$ ), and more often came from medium/high SES families as opposed to low (71.9% versus 41.6%,  $\chi^2 = 88.1$ ,  $p < .00$ ).

Table 1 (columns 2–4) shows the means and SDs of the YSR scales in the GP and ID samples. We found no differences between the samples on most scales; however, mean scale scores were significantly higher for the GP youths than for the lower (but not the higher) IQ group on Attention Problems, Delinquent Behavior, Aggressive Behavior, Externalizing, and Total Problems (all  $p < .05$ ).

#### Internal Consistency

In general, Cronbach's  $\alpha$  did not differ between the GP and ID samples, but overall higher  $\alpha$  values were found in the ID samples, except for Delinquent Behavior. The  $\alpha$  values in the lower IQ group were smaller than in the higher IQ group, but mostly still somewhat higher than in the GP (Table 1, columns 5–7).

#### Parent-Adolescent Agreement

Columns 8–10 of Table 1 show the ICCs between similar YSR and CBCL scale scores. Overall, ICCs were not significantly different between samples, except for Anxious/Depressed (higher ICC in the lower IQ group than in the GP; ICC = 0.49 versus ICC = 0.34,  $z = 2.26$ ,  $p = .02$ ), and for Aggressive Behavior (higher ICC in the higher IQ group than in the GP; ICC = 0.53 versus ICC = .36,  $z = 2.00$ ,  $p = .05$ ).

#### Construct Validity

Table 2 shows the extent to which five criteria of both convergent and discriminant validity were met in all three samples (Campbell and Fiske, 1959).

The criterion of convergent validity was met in all samples (averaging 0.33, 0.39, and 0.34, for the GP, higher IQ, and lower IQ samples, respectively), and in all samples, the lowest monotrait-multimethod correlation coefficient was found for Thought Problems. Compared with the GP, most criteria of discriminant validity were met to a similar degree in the higher and to a lesser degree in the lower IQ groups. However, in all of the samples, the second criterion (i.e., monotrait-multimethod correlations are higher than the correlations between different subscales in one instrument), was not met, ranging from 68.3% in the GP to 78.6% in the lower IQ group. The range of Kendall's  $\tau$  was smaller in the GP than in the ID samples, but the correlation coefficients were not significantly different between samples (all  $z > 1.96$ ,  $p > .05$ ).

#### Criterion-Related Validity

In both ID groups, mean YSR scale scores were higher for adolescents with than without psychiatric symptoms, although in the higher IQ group these differences were not significant for Withdrawn and Social Problems subscales (Table 3).

**TABLE 1**  
Means, SDs, and Cronbach's  $\alpha$  of YSR Scales in the GP and ID Samples and ICCs Between Parent Report (CBCL) and Self-Report (YSR) on Similar Scales

Scales	Mean (SD)			Cronbach's $\alpha$			ICC <sup>a</sup>		
	GP	Higher IQ	Lower IQ	GP	Higher IQ	Lower IQ	GP	Higher IQ	Lower IQ
Withdrawn	2.5 (2.1)	2.6 (2.3)	2.4 (2.0)	.61	.68	.52	0.33	0.31	0.25
Somatic Complaints	2.5 (2.4)	2.6 (2.7)	2.6 (2.5)	.65	.75	.70	0.32	0.42	0.32
Anxious/Depressed	4.8 (4.0)	4.3 (4.7)	4.0 (4.2)	.79	.88	.83	0.34	0.50	0.49 <sup>b</sup>
Social Problems	2.5 (2.1)	2.7 (2.6)	2.7 (2.2)	.56	.72	.56	0.29	0.31	0.25
Thought Problems	1.2 (1.6)	1.5 (1.9)	1.0 (1.4)	.48	.66	.52	0.12	0.16	0.16
Attention Problems	4.8 (2.8)	4.5 (2.8)	3.9 (2.7)	.65	.69	.65	0.36	0.32	0.29
Delinquent Behavior	3.4 (2.4)	3.5 (2.2)	3.0 (2.2)	.61	.47	.46	0.39	0.34	0.44
Aggressive Behavior	7.3 (4.6)	6.5 (5.2)	6.2 (5.3)	.80	.85	.85	0.36	0.53 <sup>b</sup>	0.35
Internalizing	9.7 (6.5)	9.2 (8.2)	8.8 (6.9)	.83	.90	.85	0.37	0.43	0.41
Externalizing	10.7 (6.3)	10.0 (6.8)	9.2 (6.8)	.83	.85	.85	0.40	0.49	0.39
Total Problems	33.8 (17.1)	31.6 (21.1)	29.3 (18.5)	.92	.95	.93	0.34	0.40	0.36

Note: GP = general population; ID = intellectual disability; ICCs = intraclass correlation coefficients; CBCL = Child Behavior Checklist; YSR = Youth Self-Report.

<sup>a</sup> All ICCs at  $p < .05$ , except Thought Problems (higher IQ group;  $p = .05$ ).

<sup>b</sup> ICC is higher than in the GP sample ( $p < .05$ ).



**TABLE 2**  
Extent of Meeting the MTMM Criteria in the GP, Higher IQ, and Lower IQ Samples

Criteria for Construct Validity	GP	Higher IQ	Lower IQ
Convergent validity			
Monotrait-multimethod correlations <sup>a</sup> are (1) significantly different from zero and (2) sufficiently large	(1) met; (2) lowest is 0.13 (Thought Problems)	(1) met; (2) lowest is 0.20 (Thought Problems)	(1) met; (2) lowest is 0.16 (Thought Problems)
Discriminant validity			
Monotrait-multimethod correlations are higher than their corresponding MTMM correlations (i.e., correlations between both different subscales and different instruments)	4× not met: all for Thought Problems	3× not met: 1× Withdrawn, 2× Thought Problems	6× not met: 1× Withdrawn, 3× Social Problems, 1× Thought Problems, 1× Attention Problems
Discriminant validity			
Monotrait-multimethod correlations are higher than MTMM correlations (i.e., correlations between different subscales in one instrument)	68.3% not met	74.1% not met	78.6% not met
Patterns of correlations are the same among the multitrait-monomethod and MTMM correlation triangles <sup>b</sup>	Kendall's $\tau$ 0.60–0.70	Kendall's $\tau$ 0.21–0.59	Kendall's $\tau$ 0.28–0.66
Within the YSR: the correlations between different subscales are lower than the Cronbach's $\alpha$ of the subscales (Table 1, columns 5–7)	Met	1× not met	5× not met

*Note:* MTMM = Multitrait-multimethod; GP = general population; YSR = Youth Self-Report.

<sup>a</sup> These correlations were about similar to the intraclass correlation coefficients in Table 1, columns 8–10.

<sup>b</sup> No significant differences between the GP and intellectual disability samples were detected.

**TABLE 3**  
Comparing Mean YSR Scale Scores Between Adolescents With (Present)  
and Without Psychiatric Symptoms (Absent) in Two IQ Groups

YSR Scales	Higher IQ			Lower IQ		
	Absent ( <i>n</i> = 78)	Present ( <i>n</i> = 18)	PEV	Absent ( <i>n</i> = 116)	Present ( <i>n</i> = 43)	PEV
Withdrawn	2.3	3.5	—	2.1	3.4	9.9
Somatic Complaints	2.2	4.8	14.5	2.2	3.2	2.4
Anxious/Depressed	3.6	6.2	4.9	3.1	6.6	14.2
Social Problems	2.4	3.6	—	2.4	3.6	6.7
Thought Problems	1.3	2.7	9.1	0.9	1.6	5.1
Attention Problems	3.9	7.2	24.2	3.4	5.4	11.2
Delinquent Behavior	3.2	4.7	6.3	2.6	4.1	10.1
Aggressive Behavior	5.3	11.5	18.3	4.9	9.5	14.9
Internalizing	7.8	14.2	9.0	7.2	12.7	13.9
Externalizing	8.5	16.2	16.8	7.5	13.6	16.1
Total Problems	27.0	49.9	15.9	24.4	42.4	19.3

*Note:* Analyses of variance corrected for age, sex, IQ, and socioeconomic status differences. Only percentages of explained variance for significant ( $p < .05$ ) differences are presented. YSR = Youth Self-Report; PEV = percentage of explained variance.

According to Cohen's criteria (Cohen, 1988), most effect sizes of significant differences can be considered medium (PEV between 5.9 and 13.8), or large (PEV >13.8). Small effect sizes (PEV <5.9) were found for Somatic Complaints and Thought Problems (lower IQ group), and Anxious/Depressed (higher IQ group).

## DISCUSSION

To determine whether the YSR can also be used by youth with moderate to borderline IDs, we compared the psychometric properties of the YSR in two groups of adolescents with IDs with GP adolescents. Overall, the results from this study support the use of the YSR to assess emotional and behavioral problems through self-reports in an interview in 11- to 18-year-olds with an IQ  $\geq 48$  without autism. This is especially true for adolescents with an IQ  $\geq 70$ . Although other studies draw similar conclusions for other self-report instruments on overall or specific types of psychopathology (Emerson, 2005; Heiman, 2001; Lindsay et al., 1994; Manikam et al., 1995), this study is the first to provide a more precise indication of the intellectual requirements for completing the YSR, instead of referring to an ID level (e.g., mild or moderate). Receiver operating characteristics curve analysis showed that the adolescents' IQ was an accurate measure of differentiating between adolescents who were and were not capable of successfully participating.

Compared with non-ID peers, youth with IDs generally reported similar or lower (lower IQ group only) problem scores. This is in contrast to the commonly found higher problem scores for youth with IDs. However, most of these studies relied on parent and/or teacher reports and not on self-reports. This implies that separate norms for youth with ID are needed.

### Internal Consistency

Levels of internal consistency give an indication of how well a set of items measure a defined construct. A Cronbach's  $\alpha$  of  $\geq .70$  suggests good reliability (Nunnally and Bernstein, 1994). In both ID samples, except for Delinquent Behavior,  $\alpha$  values were about the same or higher than in the GP and more often indicated good reliability, especially in the higher IQ group. In the lower IQ group,  $\alpha$  values were lower than in the higher IQ group. The constructs as measured in the individual subscales seem to also apply to adolescents

with IDs, but to a lesser degree for Withdrawn (lower IQ group) and Delinquent Behavior subscales.

### Parent-Adolescent Agreement

As in GP studies, in which parent-adolescent agreement correlation coefficients average 0.25 (Achenbach et al., 1987; Van der Ende, 1999), levels of parent-adolescent agreement were relatively low in all three samples. They were lowest for Thought Problems (ICCs <0.16), but most ICCs ranged from 0.30 to 0.40, which stands for moderate agreement (Cohen, 1988). Between both ID samples, ICCs did not significantly differ. This was also true for differences between the GP and both ID groups, except for Anxious/Depressed (higher in the ID groups) and Aggressive Behavior (higher in higher IQ group).

Regarding Anxious/Depressed, it may be that because adolescents with IDs are usually more dependent on their parents than are GP adolescents and perhaps spend less time outside the home, their parents are more able to observe these behaviors (e.g., loneliness, fears, easily embarrassed). It may also be that these adolescents themselves are less capable of concealing emotional problems from their parents than GP adolescents. Nonetheless, this does not explain why this higher level of agreement was not found for other types of internalizing problems.

In the higher IQ group, parents and adolescents more often agreed on Aggressive Behavior than in the lower IQ group (although not significantly) and in the GP. It is possible that when youths with higher IQs display behaviors such as screaming, teasing, and acting hot tempered, their parents more often confront them with their behaviors than parents of adolescents with lower IQs who may be more likely to view these behaviors as part of their child's ID. In addition, parents of GP adolescents may be less aware of their child's behavior because their children usually spend more time outside the home than youth with IDs do.

### Construct Validity

We assessed construct validity by inspecting MTMM matrices according to five criteria. Although statistical approaches such as confirmatory factor analysis are preferred in analyzing the MTMM matrix (Kenny and Kashy, 1992) because of the relatively small sample sizes of the two ID groups, this was not feasible in our study.

The level of convergent validity was similar in all samples, but regarding discriminant validity, the results were less obvious. These criteria were not perfectly met

in any sample, but were most often met in the GP and least often in the lower IQ group. Not surprisingly, the higher IQ group resembled the GP more than the lower IQ group. Of all discriminant validity criteria, the second criterion (monotrait-multimethod correlation coefficients are higher than correlation coefficients between different subscales of one method/instrument, i.e., MTMM) was not met in any sample. This suggests problems with discriminant validity because different constructs being measured with one instrument are more highly correlated than two independent measures of one construct. However, this was true for both the ID samples and to a lesser degree for the GP sample. Because relatively high levels of comorbidity of internalizing and externalizing problems are frequently found also in youth with IDs (Dekker and Koot, 2003), this may explain the relatively high correlation coefficients between subscales.

Even though the patterns of trait interrelationships were not significantly different between and within samples (criterion 3 of discriminant validity), the pattern was most consistent in the GP (i.e., smaller range of Kendall's  $\tau$ ). In the ID samples, correlation of measures of traits or types of behavior seems more dependent on informants than in the GP.

#### Criterion-Related Validity

Criterion-related validity was supported in both IQ groups. All adolescents with unspecified psychiatric symptoms had  $\approx 1.5$  to 2.0 times higher scores on all YSR scales, although not significantly higher on Withdrawn and Social Problems in the higher IQ group. Because most effect sizes of these differences can be considered medium or large, these results provide strong indications that the YSR assesses emotional and behavioral problems in adolescents with ID.

#### Limitations

Nonrandom sample attrition with somewhat less participation of educable children and children from non-Dutch parents at time 1 and time 3 may limit the generalization of these results to non-Dutch youth with IDs. Furthermore, the IQ was based on four subscales, which provides a marginally less accurate IQ than a whole IQ test. Also, because individual differences occur frequently, the  $\text{IQ} \geq 48$  criterion for successfully completing the YSR should be taken as an indication

and not as a strict criterion to determine whether the YSR can be administered.

Furthermore, one has to keep in mind that the YSR was self-completed in the GP sample and administered in an interview in the ID sample. Even though the YSR allows for oral administration and adolescents with ID were told that their answers would be treated confidentially, it may be that they were more reluctant to report displaying some behaviors than youth without IDs who completed the YSR themselves.

Finally, as an indication of criterion-related validity, we compared the mean scores of youth with and without psychiatric symptoms. It is preferable to use a more solid measure indicating the presence of mental health problems, such as mental health care status.

#### Clinical Implications and Future Research

This study has demonstrated that adolescents with IDs are capable of providing information about their own emotional and behavioral functioning that is not similar and thus adds to the information given by their parents. Therefore, in either clinical or research settings, to obtain a more comprehensive picture of these adolescents' emotional and behavioral functioning, they should also be consulted as informants. Second, compared with results from the GP, we have no reason to reject the YSR as a valuable tool to obtain this information, especially in higher functioning adolescents with IDs but without autism, when administered in an interview. Thus, in addition to CBCL and TRF, the YSR can also be used in this population.

Because the present study is the first to examine the YSR in a large population-based sample of adolescents with IDs, more research is needed to confirm the results of this study but also to statistically examine the construct validity of the YSR in this population, better determine the criterion-related validity in this population, examine the test-retest reliability and predictive validity, and address the issue of separate norms for youth with IDs. More specifically, in line with the CBCL, TRF, and YSR manuals, future studies need to distinguish between boys and girls and between age groups.

Finally, in this study, adolescents with moderate and mild ID were studied as one group. Especially because adolescents with moderate IDs were found to have the most trouble in completing self-reports, future research is needed to refine the findings and conclusions from this study by investigating adolescents



with moderate and mild ID separately in larger population-based samples.

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